Innovative platform for real-time management of waterworks

Pietro Fiorentini

OVERLAND KARMA

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OVERLAND KARMA is the software platform designed for **centralised control**, **real time supervision** and **structured data logging** from water systems distributed across the territory.

The platform enables the **collection, normalisation, analysis and visualisation** of data acquired from **RTUs, PLCs, field sensors and** aggregated data **of meters.**
The platform is natively integrated with **AQUAWORKS**, specialised software for water district management.

OVERLAND KARMA is supported by the **Pietro Fiorentini** integrated support service and is designed for high performance, safety and scalability.

Technical operational staff/ leakage search teams

Control Room and Operation Manager

Automation /SCADA / ICT managers

Functions	Description
Structure and organisation of systems	**Multilevel architecture** fully configurable, with **geographic visualisation** of systems and devices installed in the field. Intelligent **search and filter** functions by area, system or type.
Data collection and normalisation	**Acquisition of process data** from RTUs, PLCs, field sensors and aggregated meter data, via **standard protocols**. Data are normalised, logged and made available on interactive dashboards and synoptics.
Customisable synoptics and dashboards	**Fully configurable dashboards** by system or measuring point, with interactive objects showing **hydraulic parameters and consumption** Users can independently create or edit synoptics thanks to a **library of dedicated objects**.
Advanced RTU diagnostics	**Real-time monitoring** of operational status, battery level, signal quality and data reliability of each device. Automatic differentiation between **remote and battery powered RTUs**, with intelligent notifications and option of **sending voice alerts** or SMS.
Alarm and notification system	**HyperAlarm module** with configuration of static or dynamic threshold alarms, severity levels and customisable notification channels (e-mail, SMS, Telegram bot, voice calls) to **on-call groups**, ensuring **targeted and timely management of anomalies**.
Reporting and advanced data analysis	Generation of **customised reports** with filters by area, system or period. Dashboards and graphs enable **comparisons between systems, RTUs or time intervals**, monitoring performance, service levels and operational anomalies.

Table 1 Functions

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Architecture and distribution

OVERLAND KARMA is available both as a cloud service (**SaaS**) and as software installed at the customer's premises (**On Premise**). In both cases, it is accessible via a normal web browser, without the need to install applications on the devices.

The platform is designed to offer high scalability, guarantee service continuity, and ensure **maximum operational reliability**, thanks to its containerised microservices architecture.

Software updates are released in a controlled manner, **with no impact on operations**. Scheduled maintenance is also provided, aimed at maintaining consistently high performance and ensuring the full safety of the installed environment.

Overland Karma: optional modules

- Diana module for advanced pressure monitoring (pressure transients)
- RTCP ML module for pressure regulation using Machine Learning algorithm

Overland Karma: competitive advantages

- **Native** integration with **SCADA, GIS, WFM, SAC** via RESTful and MQTT API
- **Modular and scalable architecture,** expandable without impacting existing configurations
- Maximum operational reliability thanks to **automatic updates** and guaranteed continuity.
- Safety by design, developed according to standards **IEC 62443** and **ISO/IEC 27001**
- **Interoperability** with field devices via standard protocols and open APIs
- **Access from anywhere** with responsive web interface, also optimised for mobile use.
- **Multi language and multi-time zone** support for management across several territories.
- Dedicated **technical support** and **continuous training**

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